

in fact, notwithstanding the high baseline patient risk profile, no procedure-related adverse events were documented.

We acknowledge some limitations of our pivotal study. First, the comparisons between patients with and without prior SMVR should be interpreted with caution, because they were not pre-defined in our initial protocol; nevertheless, they help in settling our patients' high-risk clinical status while reassuring the feasibility and original signs of effectiveness of the intervention performed. Second, larger series and longer term follow-up are warranted to confirm our initial findings in this highly selected population. Finally, determining the most appropriate therapy (i.e., PMVR or surgical reoperation) for patients with SMVR failure warrants future investigation.

In conclusion, we were able to demonstrate in a preliminary experience the safety and efficacy of PMVR with the MitraClip therapy in patients with surgical mitral valve annuloplasty failure. The promising results demonstrated herewith, therefore, open a new avenue for further investigation of the role of MitraClip implantation in this complex clinical scenario.

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REFERENCES

1. Vahanian A, Alfieri O, Andreotti F, et al. Guidelines on the management of valvular heart disease (version 2012). *Eur Heart J* 2012;33:2451–96.
2. McClure RS, Athanasopoulos LV, McGurk S, Davidson MJ, Couper GS, Cohn LH. One thousand minimally invasive mitral valve operations: early outcomes, late outcomes, and echocardiographic follow-up. *J Thorac Cardiovasc Surg* 2013;145:1199–206.

3. Feldman T, Foster E, Glower DD, et al. Percutaneous repair or surgery for mitral regurgitation. *N Engl J Med* 2011;364:1395–406.
4. Descoutures F, Himbert D, Maisano F, et al. Transcatheter valve-in-ring implantation after failure of surgical mitral repair. *Eur J Cardiothorac Surg* 2013;44:e8–15.
5. Lim DS, Kunjumen BJ, Smalling R. Mitral valve repair with the MitraClip device after prior surgical mitral annuloplasty. *Catheter Cardiovasc Interv* 2010;76:455–9.
6. Grasso C, Capodanno D, Scandura S, et al. One- and twelve-month safety and efficacy outcomes of patients undergoing edge-to-edge percutaneous mitral valve repair (from the GRASP registry). *Am J Cardiol* 2013;111:1482–7.

Letter to the Editor

Endpoints for Diuresis



Are We There Yet?

Diuretics and relief of congestion remain the mainstay of therapy in patients hospitalized with heart failure (HF), regardless of ejection fraction. However, limited data and established practice guidelines are available to guide clinicians in the duration and intensity of inpatient diuresis. In a recent issue of the *Journal*, van der Meer et al. (1) add to the growing body of published data indicating that changes in certain parameters during hospital stay, including renal function (2), body weight (3), and intravascular volume (4), might predict post-discharge clinical course. In addition to defining the ideal surrogate marker(s) to reflect clinical euvoemia, future initiatives in this area should address the optimal method of decongestion and the compartment of desired fluid removal (intravascular, extravascular, and so forth). Subpopulations such as patients with chronic kidney disease, advanced HF, predominant right-sided HF, and HF with preserved ejection fraction likely warrant special consideration. Matching the right marker of decongestion with the right patient population will be an important objective of future studies.

Overall length of stay in HF has trended down, despite persistently high rates of post-discharge outcomes (5). This might reflect inadequate congestion, because approximately 50% of HF patients lose <2 kg during hospital stay (6). Early readmissions might be related to hemodynamic perturbations rather than progression of HF and thus might be at least partially responsive to aggressive volume management. Comparative strategies for various metric-guided approaches to decongestion should be prospectively assessed to optimize post-discharge outcomes in HF. The tremendous economic and clinical burden of HF demands a more nuanced, systematic, and standardized approach to the management of congestion.

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REFERENCES

1. van der Meer P, Postmus D, Ponikowski P, et al. The predictive value of short-term changes in hemoglobin concentration in patients presenting with acute decompensated heart failure. *J Am Coll Cardiol* 2013;61:1973–81.
2. Blair JE, Pang PS, Schrier RW, et al. Changes in renal function during hospitalization and soon after discharge in patients admitted for worsening heart failure in the placebo group of the EVEREST trial. *Eur Heart J* 2011;32:2563–72.
3. Blair JE, Khan S, Konstam MA, et al. Weight changes after hospitalization for worsening heart failure and subsequent re-hospitalization and mortality in the EVEREST trial. *Eur Heart J* 2009;30:1666–73.
4. Kociol RD, McNulty SE, Hernandez AF, et al. Markers of decongestion, dyspnea relief, and clinical outcomes among patients hospitalized with acute heart failure. *Circ Heart Fail* 2013;6:240–5.
5. Bueno H, Ross JS, Wang Y, et al. Trends in length of stay and short-term outcomes among Medicare patients hospitalized for heart failure, 1993–2006. *JAMA* 2010;303:2141–7.
6. Fonarow GC, Stough WG, Abraham WT, et al. Characteristics, treatments, and outcomes of patients with preserved systolic function hospitalized for heart failure: a report from the OPTIMIZE-HF registry. *J Am Coll Cardiol* 2007;50:768–77.